UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,945	05/11/2001	Michael L. Imundo	10420/15	6611

7590 06/15/2011

BRINKS HOFER GILSON & LIONE
P.O. Box 10395
Chicago, IL 60610

EXAMINER
COZART, JERMIE E

ART UNIT	PAPER NUMBER
3726	

MAIL DATE	DELIVERY MODE
06/15/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL L. IMUNDO and JOHN R. DAILIDONIS

Appeal 2010-003029
Application 09/853,945
Technology Center 3700

Before SCOTT R. BOALICK, DANIEL S. SONG, and
ERIC B. CHEN, *Administrative Patent Judges.*

CHEN, *Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the non-final rejection of claims 1-5, 7-16 and 18-22. Claims 6 and 17 have been indicated to be allowable if rewritten in independent form. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

Appellants' invention relates to a method for repairing a structure by measuring a part or portion to be repaired using a multi-axis measuring machine (Spec. 3:4-7), storing measurement data (Spec. 3:15-16) and using the measurement data to program at least one machine tool to automatically manufacture a repair part (Spec. 3:18-20).

Claims 1, 2, 4, 5, 7, 9, 10, 12, 13, 15, 16, 18, 20 and 21 stand rejected under 35 U.S.C. § 103(a) as being obvious over Richter (U.S. Patent No. 5,913,555) and Heier (U.S. Patent No. 5,285,397).

Claims 3 and 14 stand rejected under 35 U.S.C. § 103(a) as being obvious over Richter, Heier and Appellants' admission.

Claims 8, 11, 19 and 22 stand rejected under 35 U.S.C. § 103(a) as being obvious over Richter, Heier and Flint (U.S. Patent No. 5,736,201).

With respect to independent claims 1 and 12, we are not convinced by Appellants' arguments (App. Br. 6-7; *see also* Reply Br. 2-3) that the Examiner improperly combined Richter and Heier. In particular, Appellants argue that there is an insufficient motivation to combine and there is no showing of a reasonable expectation of success.

The Examiner acknowledged that Richter does not teach the limitation "a multi-axis digital measuring device" (Ans. 4) and cited Heier for the disclosure of cameras 7a-7d for a coordinate measuring machine (Ans. 4-5; Heier, fig. 1). The Examiner concluded that independent claims 1 and 12

would have been obvious over the combination of Richter and Heier. (Ans. 5.) We agree with the Examiner.

Richter teaches a method of repairing a worn turbine blade 1 having a worn blade tip portion 4 and a remaining blade portion 2 (col. 3, ll. 52-54; fig. 1) in which the worn blade tip portion 4 is removed at a height h from the remaining blade portion 2 (col. 3, ll. 62-65). A digital camera 10 captures an image of the end of the remaining blade portion 2 and provides image data to an image processing computer 11. (Col. 4, ll. 45-48.) The image processing computer 11 analyzes and processes the image data, providing an output to a computer numerical control (CNC) unit 12 and a laser beam cutting apparatus 13 (col. 4, ll. 48-52) to fabricate a repair part 4' (col. 4, ll. 53-56; fig. 5).

Heier describes "a coordinate-measuring machine for non-contact measurement of objects" (col. 2, ll. 31-33) including a table 1 having four rigid columns 5a-5d at the corners of the table 1 with two-axis articulating heads 6a-6d mounted on each column 5a-5d (col. 3, ll. 63-65; fig. 1). Cameras 7a-7d are attached to each of the articulating heads 6a-6d. (Col. 4, ll. 11-19.) During a measurement cycle of a workpiece 3, its surface is completely recorded, for different angular positions of the cameras 7a-7d. (Col. 3, ll. 60-62; col. 5, ll. 49-51; fig. 1.) The cameras 7a-7d provide positional-measurement values and the articulating heads 6a-6d provide angular-measurement values to a computer 10. (Col. 5, ll. 56-63.)

A person of ordinary skill in the art would have recognized that incorporating the coordinate-measuring machine of Heier, including the cameras 7a-7d attached to articulating heads 6a-6d with Richter, would provide the ability to measure the coordinates for a complete surface of the

remaining blade portion 2. *See KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 417 (2007). Thus, we agree with the Examiner (Ans. 5) that modifying Richter to include the coordinate-measuring machine of Heier would have been obvious.

Appellants argue that "Richter achieves his repair by making a single image of a blade at a particular height" (App. Br. 6) and "has no need for recording horizontal optical intersects at different heights" (App. Br. 6-7). Appellants further argue that "one of ordinary skill in the art would not be motivated to combine the teachings of Heier with Richter" because "Heier requires objects that are subject to measurement to be mounted to a vibration damped table" (Reply Br. 2) while "Richter discloses a method of repairing compressor and turbine blades of jet engines by recording a single image with a digital camera" (Reply Br. 3). However, the rejection of claims 1 and 12 is based on the *combination* of Richter and Heier and Appellants cannot show non-obviousness by attacking references individually. *See In re Keller,* 642 F.2d 413, 426 (CCPA 1981). Furthermore, as discussed previously, the combination of Richter and Heier is based on the improvement of a similar device in the same way as in the prior art (i.e., the ability to measure the coordinates for a complete surface of the remaining blade portion 2). Appellants have not presented any convincing arguments or evidence that the Examiner improperly combined Heier with Richter.

Appellants also argue that "the rejection is incomplete and does not make out a prima facie case of obviousness because the rejection does not analyze the combination for a likelihood of success." (App. Br. 9.) Richter describes a digital camera 10 that captures an image of the end of the remaining blade portion 2. (Col. 4, ll. 45-46; fig. 5.) Heier describes a

coordinate-measuring machine (col. 2, ll. 30-32) in which cameras 7a-7d scan a surface of a workpiece 3 (col. 3, ll. 60-62; col. 5, ll. 49-51; fig. 1). Due to the highly similar nature of the technology, the combination of Heier with Richter (i.e., incorporating the coordinate-measuring machine of Heier, including the cameras 7a-7d, with the digital camera 10 of Richter) would have a reasonable expectation of success. Furthermore, Appellants have not provided any convincing evidence to the contrary.

Therefore, the Examiner has properly combined Richter and Heier to reject independent claims 1 and 12 under 35 U.S.C. § 103(a).

We are not convinced by Appellants' arguments (App. Br. 7-8; *see also* Reply Br. 3-5) that the combination of Richter and Heier would not have rendered obvious independent claims 1 and 12, including "a multi-axis digital measuring device."

As discussed previously, the Examiner acknowledged that Richter does not teach "a multi-axis digital measuring device" (Ans. 4) and cited Heier for the disclosure of cameras 7a-7d for a coordinate-measuring machine (Ans. 4-5; Heier, fig. 1). We agree with the Examiner.

Appellants argue that "Claim 1 is properly construed to require a single multi-axis digital measuring device" (App. Br. 7) and that "Heier does not teach or suggest 'a multi-axis digital measuring device' as claimed, but 'at least two' such devices" because "Heier requires four digital cameras." (App. Br. 8.) Although Appellants are attempting to distinguish over Heier by arguing that claim 1 requires a *single* multi-axis digital measuring device, this feature is not claimed. Even assuming for the sake of argument that "a multi-axis digital measuring device" must be interpreted as a single multi-axis digital measuring device, this claim term is broad enough to encompass

"a coordinate-measuring machine for non-contact measurement of objects" as taught by Heier (col. 2, ll. 31-32).

Appellants also argue that "the combination of Richter and Heier fails to disclose the claimed 'multi-axis digital measuring device' because Richter fails to teach or suggest taking measurements at multiple heights." (Reply Br. 4.) As discussed previously, the combination of Richter and Heier is based on the improvement of a similar device in the same way as in the prior art (i.e., the ability to measure the coordinates for a complete surface of the remaining blade portion 2).

Therefore, we agree with the Examiner that the combination of Richter and Heier would have rendered obvious independent claims 1 and 12, including "a multi-axis digital measuring device."

Accordingly, we sustain the rejection of independent claims 1 and 12 under 35 U.S.C. § 103(a). Claims 4, 5, 7, 10, 15, 16, 18 and 20 depend from independent claims 1 and 12 and, because Appellants have not presented any further arguments with respect to these claims, we sustain the rejection of these claims under 35 U.S.C. § 103(a) for the reasons discussed with respect to independent claims 1 and 12.

We are not convinced by Appellants' arguments (App. Br. 9-11; *see also* Reply Br. 5-6) that the combination of Richter and Heier would not have rendered obvious dependent claims 2 and 13 including "adding additional data for use in automatically manufacturing the repair part."

The Examiner found that either the positional-measurement values or the angular-measurement values of Heier correspond to the claimed "additional data." (Ans. 4; Heier, col. 5, ll. 56-63.)

Appellants argue that "the claim term 'adding additional data' has been defined in the specification as 'adding original manufacturing or inspection data' for use in automatically manufacturing the repair part . . . ." (App. Br. 10.) However, the passages of the Specification cited by Appellants do not support this narrow definition and the Specification also does not recite the term "additional data." Under the broadest reasonable interpretation consistent with the Specification, we agree with the Examiner that Heier teaches "additional data." The Specification describes "manufacturing data" (Spec. 8:20-21; 12:6-8), "measured data" (Spec. 8:20-21; 9:23-24) and "inspection data" (Spec. 12:6-8). Because the claim term "data" can refer to "manufacturing data", "measured data" or "inspection data," we find that the Examiner's construction of "additional data" as either the positional-measurement values or the angular-measurement of Heier to be reasonable and consistent with the Specification. Although Appellants are attempting to distinguish over Heier by arguing that claims 2 and 13 require adding original manufacturing or inspection data, this feature is not claimed.

Appellants also argue that "the 'additional data' should not include data generated in measuring the structure, said data also used to automatically manufacture a repair part or a sheetmetal repair part." (App. Br. 10.) Although Appellants are attempting to distinguish over Heier by arguing that claims 2 and 13 require additional data not previously measured during the "measuring at least a portion of the structure with the device" step recited in claims 1 and 12, this feature is not claimed.

Therefore, we agree with the Examiner that the combination of Richter and Heier would have rendered obvious dependent claims 2 and 13

including "adding additional data for use in automatically manufacturing the repair part."

Accordingly, we sustain the rejection of dependent claims 2 and 13 under 35 U.S.C. § 103(a).

We are not convinced by Appellants' arguments (App. Br. 11-12) that the combination of Richter and Heier would not have rendered obvious dependent claims 9 and 21 including "translating the data from a first format to a second format."

The Examiner found that the calculation of coordinates of each measured point on the workpiece 3 of Heier using measured-angle values, stored calibration data and measurement data from an image-processing device corresponds to the claimed "translating the data from a first format to a second format." (Ans. 5; Heier, col. 6, ll. 4-11.)

Appellants argue that "[t]he passages cited in Heier disclose calculation and manipulation of data, but do not teach or suggest translating the data from one format to another, such as between application programs." (App. Br. 11-12.) However, under the broadest reasonable interpretation, we agree with the Examiner that Heier teaches "translating the data from a first format to a second format." The Specification does not provide an express definition of "translating." A relevant plain meaning of "translate" is "to bear, remove, or change from one place, state, form, or appearance to another." *Webster's Ninth New Collegiate Dictionary* 1254 (1990). Because Heier changes data from one form (i.e., measured-angle values, stored calibration data and measurement data from an image-processing device) to another form (i.e., coordinates of each measured point on the workpiece 3) (col. 6, ll. 4-11), we find the Examiner's construction of

"translating" to be reasonable and not inconsistent with the Specification. Although Appellants are attempting to distinguish over Heier by arguing that claims 9 and 21 require translating from one application program to another application program, this feature is not claimed.

Therefore, we agree with the Examiner that the combination of Richter and Heier would have rendered obvious dependent claims 9 and 21 including "translating the data from a first format to a second format."

Accordingly, we sustain the rejection of dependent claims 9 and 21 under 35 U.S.C. § 103(a).

We are not convinced by Appellants' arguments (App. Br. 12; *see also* Reply Br. 6) that the combination of Richter, Heier and Appellants' admission would not have rendered obvious dependent claims 3 and 14 including "planning a process to manufacture the repair part."

The Examiner found that Appellants' admission in a previously filed Appeal Brief corresponds to the features of dependent claims 3 and 14. (Ans. 5-6.) The Examiner concluded that dependent claims 3 and 14 would have been obvious over the combination of Richter, Heier and Appellants' admission. (Ans. 6.) We agree with the Examiner.

In Appellants' first Appeal Brief, at page 9, filed March 24, 2004, Appellants state "that manufacturing process planning, and the details of manufacturing process planning, are well known to those skilled in manufacturing engineering." In other words, Appellants admit that the step of "planning a process to manufacture the repair part" constitutes prior art.

Thus, the combination of Appellants' admission with Richter and Heier is nothing more than combining a well-known planning process to

manufacture a repair part with the known methods of Richter and Heier, with no unexpected results. *See KSR*, 550 U.S. 398 at 416.

Appellants argue that "[t]he present application was filed on May 11, 2001, approximately three years before the preparation of the Appeal Brief" and thus "the Appeal Brief cannot be used as prior art against this application." (App. Br. 12; *see also* Reply Br. 6.) However, an admission of prior art can be relied upon for an obviousness determination, regardless of whether the admitted prior art would otherwise qualify as prior art under the statutory categories of 35 U.S.C. § 102. *Riverwood Int'l Corp. v. R.A. Jones & Co.*, 324 F.3d 1346, 1354 (Fed. Cir. 2003). Furthermore, Appellants have not provided any convincing evidence that "planning a process to manufacture the repair part" was not known to those skilled in the manufacturing engineer prior to the filing date of the application.

Therefore, we agree with the Examiner that the combination of Richter, Heier and Appellants' admission would have rendered obvious dependent claims 3 and 14 including "planning a process to manufacture the repair part."

Accordingly, we sustain the rejection of dependent claims 3 and 14 under 35 U.S.C. § 103(a).

With respect to dependent claims 8, 11, 19 and 22, we are not convinced by Appellants' arguments (App. Br. 13-14; *see also* Reply Br. 7-8) that the Examiner improperly combined Richter, Heier and Flint.

The Examiner acknowledged that the combination of Richter and Heier does not teach all the features of dependent claims 8, 11, 19 and 22. (Ans. 6.) The Examiner cited Flint for the disclosure of transferring a three-dimensional doll's head (or a "partly finished head") from a second support

to a third support and for the disclosure of a laser scanner. (Ans. 6-7; Flint, fig. 1.) The Examiner concluded that dependent claims 8, 11, 19 and 22 would have been obvious over the combination of Richter, Heier and Flint. (Ans. 7.) We agree with the Examiner.

As discussed previously, Richter teaches a digital camera 10 for capturing an image of a remaining blade portion 2 to fabricate a repair part 4' and Heier teaches a coordinate-measuring machine including cameras 7a-7d attached to articulating heads 6a-6d.

Flint describes "a process for scanning the head of a living person, digitizing the results and using them to drive separate means for forming and coloring a doll's head." (Col. 1, ll. 12-14.) Flint teaches that a living person's head is scanned with a laser scanner and a video camera (col. 2, ll. 17-20; fig. 1) to generate digital signals used to build a replica head (col. 2, ll. 31-36). A partially built head corresponding to a replica of the living person's head is formed on a build table (i.e., the claimed "first workstation"). (Col. 3, ll. 1-5; fig. 1; *see also* col. 2, ll. 44-67.) The partially built head is transferred to a print table (i.e., the claimed "second workstation") for printing colors. (Col. 3, ll. 7-15; fig. 1.)

The combination of Flint with Richter and Heier is nothing more than combining the known method of Flint (i.e., transferring a workpiece from one table to another table) with the known methods of Richter and Heier, with no unexpected results. *See KSR*, 550 U.S. 398 at 416. Similarly, combining Flint with Richter and Heier is nothing more than combining the known laser scanner of Flint with the known coordinate-measuring machine of Heier, including the cameras 7a-7d attached to articulating heads 6a-6d, with no unexpected results. *See id.*

Appellants argue that "Richter and Heier, using digital cameras, already produce digitized signals and would not be motivated to achieve a digitized signal via a laser [as taught by Flint]" (App. Br. 13) and thus "there is insufficient motivation to combine Flint with either Richter or Heier" (App. Br. 13-14). However, as discussed previously, the combination of Flint with Richter and Heier is based on the combination of one known element with another, with no unexpected results. Appellants have not presented any convincing arguments or evidence that the Examiner improperly combined Flint with Richter and Heier.

Therefore, the Examiner has properly combined Richter, Heier and Flint to reject dependent claims 8, 11, 19 and 22 under 35 U.S.C. § 103(a).

Accordingly, we sustain the rejection of dependent claims 8, 11, 19 and 22 under 35 U.S.C. § 103(a).

DECISION

The decision to reject claims 1-5, 7-16 and 18-22 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

bim